

AMENDMENTS TO THE DRAWINGS

Please replace original Figs. 6-10 with replacement Figs. 6-10, which are submitted under separate cover, along with this Amendment.

REMARKS

In view of the above amendments and the following remarks, reconsideration of the rejections contained in the Office Action of October 18, 2006 is respectfully requested.

By this Amendment, claims 1-3 have been amended, claims 8-9 have been cancelled, and new claims 10-12 have been added. Thus, claims 1-7 and 10-12 are currently pending in the application. No new matter has been added by these amendments.

In order to make editorial improvements, the entire specification and abstract have been reviewed and revised. Due to the revisions, the amendments to the specification and abstract have been incorporated into the attached substitute specification and abstract. For the Examiner's benefit, a marked-up copy of the specification and abstract indicating the changes made thereto is also enclosed. No new matter has been added by the revisions. Entry of the substitute specification is thus respectfully requested.

On page 2 of the Office Action, the Examiner objected to the drawings, and indicated that Figs. 6-10 should be labeled as "Prior Art." In order to address the Examiner's objection, Replacement Figs. 6-10 have been submitted, under separate cover, along with this amendment. Replacement Figs. 6-10 have been labeled as "Prior Art," and therefore it is respectfully submitted that the Examiner's objection is not applicable to Replacement Figs. 6-10.

On page 2 of the Office Action, the Examiner objected to claim 1 for an informality. In particular, the Examiner noted that the phrase "the first direction of the first direction of" appeared to be an error, and indicated that one of the instances of "the first direction of" should be deleted. In order to address this objection, one of the instances of "the first direction of" has been deleted from claim 1. Therefore, it is respectfully submitted that the Examiner's objection is not applicable to claim 1, as amended.

On page 3 of the Office Action, the Examiner rejected claim 1 under 35 U.S.C. § 102(b) as being anticipated by McMaster (US 4,470,858). In addition, on pages 3-5 of the Office Action, the Examiner rejected claims 1-7 under 35 U.S.C. § 103(a) as being unpatentable over Applicants' Admitted Prior Art (AAPA) in view of van den Akker (US 6,425,969). For the reasons discussed below, it is respectfully submitted that the amended claims are clearly patentable over the prior art of record.

The discussion of the invention provided below makes reference to the specification and figures of the present application. However, these references are made only for the Examiner's benefit, and are not intended to limit the claims.

The present invention is directed to a method of manufacturing a circuit forming board. As shown in Fig. 1, a sheet 1 extends in a first direction 102, and the sheet is dipped in varnish 2 while being transferred in a second direction 101 which is parallel to the first direction 102 in order to form prepreg sheet 3. As shown in Fig. 3, films 4 are stuck onto both surfaces of prepreg sheet 3 while being transferred in a third direction 104 which is orthogonal to the first direction 102.

Amended independent claim 1 recites a method of manufacturing a circuit forming board, comprising transferring a first sheet, which extends in a first direction, in a second direction such that the first direction of the first sheet is parallel to the second direction. The method of claim 1 also comprises sticking films onto both surfaces of the first sheet while transferring the first sheet in a third direction orthogonal to the first direction of the first sheet.

McMaster discloses a lamination process which, as shown in Fig. 24, includes applying adhesive to surfaces of glass plates 300, 302, and a sheet of substrate 10 is applied to the adhesive on one of the glass plates 300, 302. The glass plates 300, 302 are then pivoted on their side edges so as to be oriented vertically, and pressed together such that the substrate 301 is sandwiched between the glass plates 300, 302. The glass plates 300, 302 and substrate 310 are then moved vertically through rollers 320, 322 to increase the spread of adhesive between the substrate 310 and the glass plates 300, 302, and are then moved under ultraviolet lamps 330 for curing the adhesive.

However, McMaster does not disclose sticking films onto both surfaces of the first sheet while transferring the first sheet in a third direction, as required by independent claim 1. Rather, McMaster discloses that the glass plates 300, 302 are applied to the substrate 310 by adhesive prior to being moved vertically towards the rollers (*i.e.*, in the third direction), and therefore does not disclose the plates being stuck to the substrate while transferring the substrate in the vertical direction. Therefore, it is respectfully submitted that McMaster does not disclose all the limitations of independent claim 1.

The Applicants' Admitted Prior Art (AAPA), as shown in Figs. 6 and 7 of the present application, discloses a glass cloth 11 having a side extending in a first direction 202 and being moved in a direction 201 parallel to the first direction 202. Films 14 are then applied to the sheet as the sheet is moved in the direction 201 parallel to the first direction 202. Thus, as noted by the Examiner, the AAPA does not disclose the films being applied to the sheet while the sheet is transferred in a third direction orthogonal to the first direction, as required by independent claim 1.

The van den Akker reference discloses a method for the production of a transverse web which, as shown in Fig. 3, includes a longitudinal fiber web 1 being cut into web parts 9 by a cutting blade 18 as the fiber web 1 is moved along a conveyor belt in a longitudinal direction of the fibers. The web parts 9a, 9b are then moved in a direction transverse to the longitudinal direction, so that longitudinal sides 14, 15 of the web parts 9a, 9b can be attached to one another so as to form a transverse fiber web 10.

Therefore, the Examiner asserts that one of ordinary skill in the art would have been motivated to combine the method of the AAPA with the teachings of van den Akker to arrive at the claimed invention. In particular, the Examiner notes that van den Akker discloses, in column 6, lines 10-14, that the web parts 9 are attached to each other in the transverse direction in order to form a laminate structure having a uniform thickness. Thus, on page 4 of the Office Action, the Examiner concludes that it would have been obvious to one of ordinary skill in the art to modify the AAPA by utilizing the transferring of the "first sheet in the third direction orthogonal to the first direction of the first sheet as taught by van den Akker to obtain a circuit board having uniform thickness."

However, it is respectfully submitted that the Examiner has not established a proper motivation to combine the AAPA with the van den Akker reference. In particular, it is noted that van den Akker discloses that the web parts are moved in the transverse direction so that longitudinal sides of adjacent web parts can be connected to each other. Further, van den Akker discloses that the longitudinal fiber web 1, prior to being cut into web parts 9, can be made such that the fiber material 8 or stabilization layer 7 projects from an end of the fiber web 1, as shown in Fig. 4. Thus, as explained in column 6, lines 5-12, by using a fiber web 1 with the projecting

ends as shown in Fig. 4, the web parts can be connected at complementary longitudinal ends so as to form a transverse fiber web which does not have an increased thickness where the web parts are joined, as shown in Fig. 7.

Based on this disclosure, Van den Akker does not provide a motivation for modifying the AAPA so as to arrive at the claimed invention because, as discussed above, van den Akker discloses that the web parts are moved in a transverse direction (orthogonal to the longitudinal direction) in order to enable longitudinal sides of separate web parts to be connected together. The AAPA, however, relates to manufacturing a circuit forming board, which does not include attaching longitudinal sides of separate parts. In addition, the Examiner's asserted motivation to combine the AAPA and van den Akker references (to obtain a circuit board having a uniform thickness) is not obtained in the van den Akker reference by transferring the web parts in the transverse direction. As discussed above, the transverse fiber of van den Akker has a uniform thickness due to the complementary connection of longitudinal edges of the separate parts.

In this regard, it is noted that "the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." MPEP § 2143.01(III). Thus, although van den Akker discloses that the web parts are transferred in a third direction orthogonal to the second direction, van den Akker only discloses the desirability of transferring separate members which are to be connected at complementary longitudinal edges, and therefore does not disclose that it would be desirable to transfer a sheet for a circuit board in a third direction orthogonal to the first direction.

Therefore, one of ordinary skill in the art would not have been motivated to transfer the sheet of AAPA in a third direction orthogonal to the first direction based on the van den Akker reference, because van den Akker only provides a motivation for separate members which are to be connected at complementary longitudinal edges, which are not present in AAPA. Accordingly, it is respectfully submitted that a *prima facie* case of obviousness has not been established regarding claims 1-7, because no teaching, suggestion or motivation exists, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, for combining AAPA with the van den Akker reference as described on page 4 of the Office Action.


Therefore, it is respectfully submitted that amended independent claim 1, as well as claims 2-7 and 10-12 which depend therefrom, are clearly allowable over the prior art of record.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice to that effect is respectfully solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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